

ETSI TS 101 952-4 V1.1.1 (2012-12)



Access, Terminals, Transmission and Multiplexing (ATTM); Access network xDSL splitters for European deployment; Part 4: Specification for dynamic distributed filters for xDSL over POTS

[ETSI TS 101 952-4 V1.1.1 \(2012-12\)](https://standards.iteh.ai/catalog/standards/etsi/6a92be59-95de-4005-9e8c-30c123b75b44/etsi-ts-101-952-4-v1-1-1-2012-12)

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ReferenceDTS/ATTM-06020

Keywords2-WIRE, access, analogue, broadband, PSTN,
splitter, xDSL

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

The present document is part 4 of a multi-part deliverable covering Access network xDSL splitters for European deployment, as identified below:

Part 1: "Generic specification of xDSL over POTS splitters";

Part 2: "Generic specification of xDSL over ISDN splitters and xDSL universal splitters";

Part 3: "Generic specification of static distributed filters for xDSL over POTS";

Part 4: "Specification for dynamic distributed filters for xDSL over POTS".

NOTE 1: Useful information on splitter tests also applicable to distributed filters may be found in TR 101 953-1-1 [i.3] and TR 101 953-2-1 [i.4]. These documents are linked to the previous versions of the splitter specifications. [i.3] and [i.4] e.g. describe the combination of the AC testing conditions of the test set-ups with the DC conditions controlled via feeding and loading bridges. If there is a discrepancy between the present document and the TR 101 953 series of documents [i.3] to [i.5], the present document prevails.

NOTE 2: The use of distributed filters is not recommended for VDSL, but it is not excluded. For this reason TS 101 952-3 [13] and the present document refer to distributed filters for xDSL and not just for ADSL.

NOTE 3: When multiple distributed filters are installed in parallel the quality of the POTS band signals tend to degrade proportionally to the number of filters placed at the customer's premises. To minimise this degradation effect, especially when more than 4 filters are used, dynamic filters as specified in the present document can be used.

The present document is fully in line with initiative "eEurope 2002 - An Information Society For All", under "The contribution of European standardization to the eEurope Initiative, A rolling Action Plan" especially under the key objective of a cheaper, faster and secure Internet.

Introduction

The present document covers all xDSL system variants, such as ADSL1, ADSL2, ADSL2plus, VDSL1 and VDSL2. It is only applicable to the Terminal Equipment (TE) (i.e. user) side of the line. There is no equivalent of the distributed filter at the CO side. The CO side central splitter requirements for xDSL over POTS splitters are in TS 101 952-1 [11].

The present document is coherent with TS 101 952-3 [13], specifying static distributed filters, extending the requirements and testing methods to the dynamic filters specification.

A number of limitations and remarks of the present document should be listed:

- 1) The present document covers dynamic distributed filters for all xDSL technologies. However, if distributed filters are used in VDSL2 scenarios to achieve a faster and cheaper deployment of service, operators should realize that this could prevent VDSL to attain its maximum theoretical transmission performances, and that ERM/EMC problems of the VDSL installation could worsen.
- 2) Distributed filters have less stringent isolation requirements than central splitters. The non-linearity of some telephone sets may then cause audible back-ground noise in the POTS band, disturbing the phone conversation and potentially even reducing the DSL capacity, particularly when the phone is picked-up.
- 3) Besides testing static requirements according to the present document, there is a strong need to test the transient behaviour of dynamic filters as it may significantly affect the data transmission performances of the associated DSL link. To this purpose, the use of TR-127 [i.11] tests of the BB forum, or of an equivalent dynamic test methodology, is recommended as an essential complement of instrumental tests to check that the dynamic filters do not affect the ongoing xDSL transmission. In fact, dynamic tests may prove that a filter works correctly in a worst case xDSL test environment, including POTS DC and ringing signals.
- 4) The use of Option A and B for defining Return Loss is kept in the present document in exactly the same way as it is used for POTS splitters and static distributed filters.

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